Alexander Hay
ME333 - Mechatronics
Chapter 28.4.1.7, 28.4.7.7, 28.4.9.8

28.4.1 1   SPI channel: 4
                NU32 pins: F4, F5, B14

        2   ADC input: AN3
                NU32 pin: B3

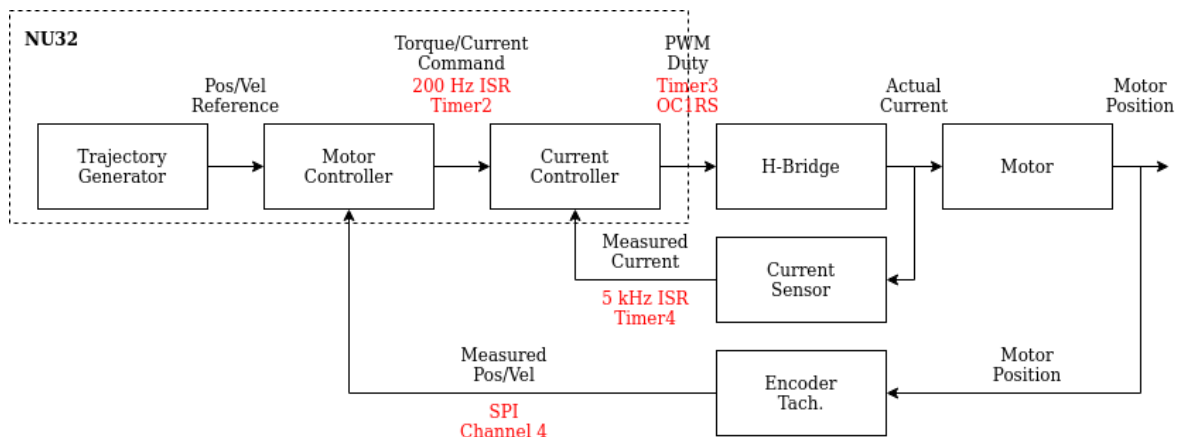   3   D-out: RD0, RD1
                PWM: OC1RS, Timer3

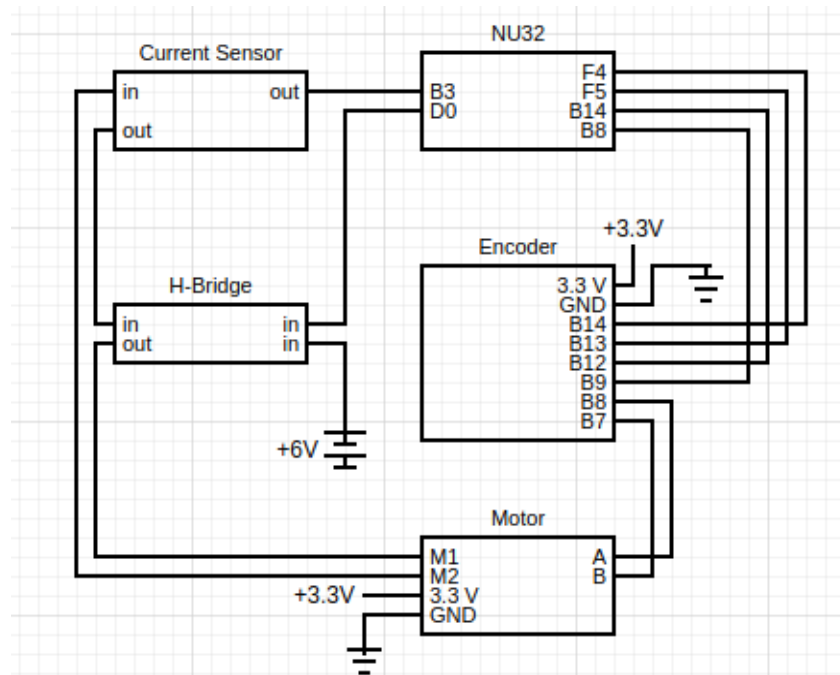   4   200Hz timer: Timer2
                5kHz timer: Timer4

                Priorities:
                Timer2: 5
                Timer4: 4

5

6

28.4.7 2 $I_{max}=2V/R_{motor}$
$V=6V$
$R_{motor}=3.2\Omega$

$I_{max}=3.75\,A$

3       $V=IR$
$I=I_{max}=3.75\,A$
$R=15\,m\Omega$

$V_{max}=0.056\,V$

4       $G=1+(R2/R1)$
$1.65V=G\times V_{max}$

$G=1.65\,V/0.056\,V=29.46$
$28.46=R2/R1$

$R2=300,000\,\Omega$
$R1=10,000\,\Omega$

5       $f_c=1/(2\pi RC)$
$f_c=200\,Hz$
$C=105\,\mu F$

$R=7.57\,\Omega$

R0	Expected I (mA)	Measured I (mA)	Sensor (V)	ADC counts
10 (to RS+)	600	530	1.97	
20 (to RS+)	300	280	1.82	
40 (to RS+)	150	150	1.74	
Open circuit	0	0	1.65	
40 (to RS-)	-150	-140	1.59	
20 (to RS-)	-300	-270	1.53	
10 (to RS-)	-600	-530	1.44	

28.4.9.8